RIMROCK JR. SR. HIGH SCHOOL, PWS # 3370018
SOURCE WATER ASSESSMENT FINAL REPORT

DATE: March 6, 2001

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for Rimrock Jr. Sr. High School, near Grand View, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Rimrock Jr. Sr. High School drinking water system consists of one well. Detections of inorganic chemicals below current drinking water maximum contaminant levels are present and are likely naturally occurring.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Rimrock Jr. Sr. High School, source water protection activities should focus on environmental education with the recreational users, residents and with parties engaged in activities that may affect water quality within the vicinity. Practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be focused. Most of the designated areas are outside the direct jurisdiction of Rimrock Jr. Sr. High School. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission and local Soil Conservation District, and the Natural Resources Conservation Service. Activities such as recreation should be coordinated with the Bureau of Land Management, the Idaho Fish & Game Dept and other related agencies.

A community with a fully-developed source water protection program will incorporate many strategies. For assistance in developing protection strategies, please contact your regional Idaho Department of Environmental Quality office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR RIMROCK JR. SR. HIGH SCHOOL, IDAHO

Section 1. Introduction - Basis for Assessment

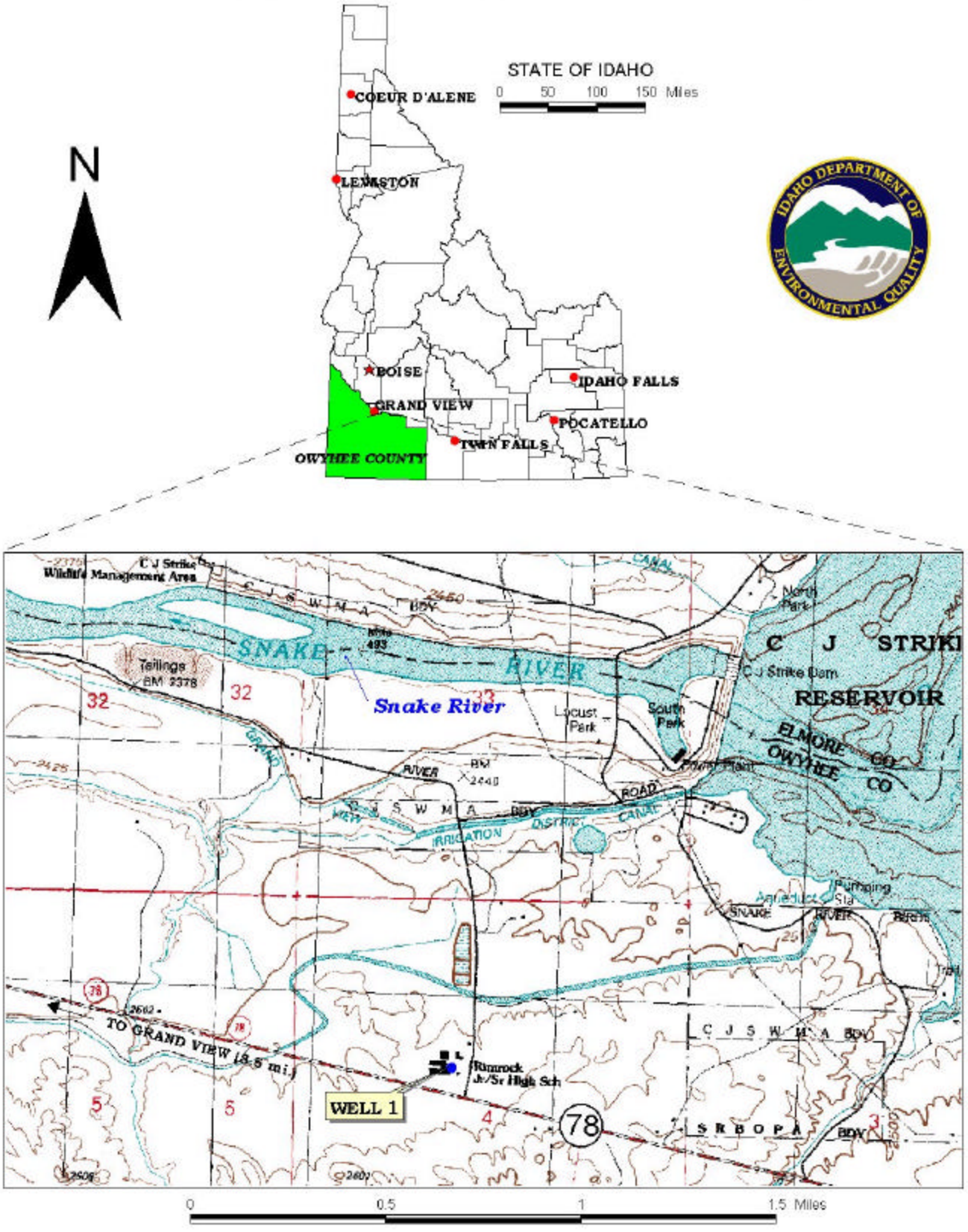
The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings, used to develop this assessment, is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

FIGURE 1. Geographic Location of Rimrock Jr. & Sr. High School



Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Rimrock Jr. Sr. High School near Grand View, Idaho serves a population of approximately 250 people. It is located south the Snake River below C.J. Strike Reservoir (Figure 1) in Owyhee County. The public drinking water system for the school consists of one well.

The primary water quality issue currently facing Rimrock Jr. Sr. High School is that of inorganic compound contamination and the problems associated with managing this contamination.. The water system has had detections of several inorganic compounds that have been below the maximum contaminant levels. The detections of the inorganic compounds are likely naturally occuring. The system has had historic microbial detections that have not reoccurred since 1993 due to treatment.

Defining the Zones of Contribution - Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the three-year (Zone 1B), six-year (Zone 2), and ten-year (Zone 3) time-of-travel (TOT) for water associated with the Bruneau/Grand View aquifer system in the vicinity of Rimrock Jr. Sr. High School. The computer model used site-specific data, assimilated by DEQ from a variety of sources including the city and other local well logs. The delineated source water assessment area for Rimrock Jr. Sr. High School can best be described as a southwesterly elongated fan covering roughly 172 acres. The actual data used by DEQ in determining the source water assessment delineation area is available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

The dominant land use outside Rimrock Jr. Sr. High School is recreation, grazing and agriculture.

Land use at the Rimrock Jr. Sr. High School consists of residential homes, school functions, school maintenance and agriculture. The homes in the area operate with individual septic systems.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

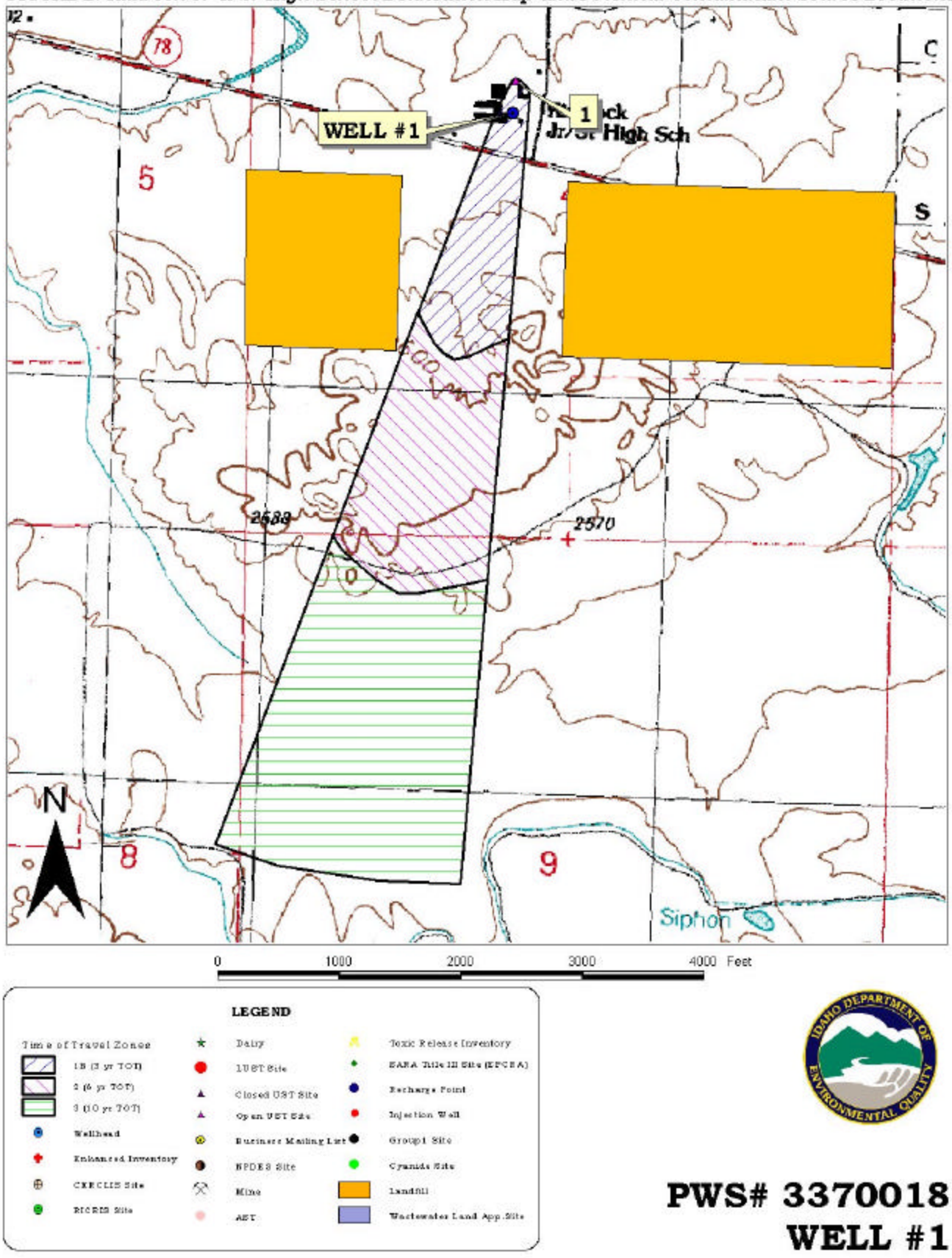
Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted during January of 2001. This involved identifying and documenting potential contaminant sources within the Rimrock Jr. Sr. High School Source Water Assessment Area through the use of computer databases and Geographic Information System maps developed by DEQ.

One potential contaminant source is located within the delineated source water area (Table 1). The potential contaminant source within delineated source water areas is located approximately 300 feet south or down gradient of the well within the 3 year time of travel zone. The potential contaminant source identified by the GIS data base consists of an underground petroleum storage tank. Two areas either side of the 3 year time of travel zone, identified as landfills could pose a concern.

Contaminants of concern consist of volatile and synthetic chemical categories associated with underground petroleum storage tanks. Table 1 lists the potential contaminants of concern, time of travel zones, and information source.

FIGURE 2. Rimrock Jr & Sr High School Delineation Map and Potential Contaminant Source Locations



PWS# 3370018
WELL #1

Table 1. Rimrock Jr. Sr. High School Potential Contaminant Inventory

SITE #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
1	UST	0-3	Database Search	VOC, SOC

[1] UST = underground storage tank
[2] TOT = time of travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, M=microbial

Section 3. Susceptibility Analyses

The susceptibility of the source to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

Hydrologic sensitivity was low for the well (Table 2). The well obtains water from a deep aquifer which is protected by a thick clay sequence that offers some protection from downward migration of contaminants generated by surface activities.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. Lower scores imply a system that can better protect the water. The Rimrock Jr. Sr. High School drinking water system consists of one well that extracts ground water for domestic and industrial uses. The well system construction score is low.

The well for the Rimrock Jr. Sr. High School drinking water system is completed to a depth of 380 feet, below a thick blue clay sequence. The well is cased to 370 feet below land surface with screened increments and a surface seal to 180 feet.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems (PWSs) follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Various aspects of the standards can be assessed from well logs. The Rimrock Jr. Sr. High School wells meets well construction standards.

Potential Contaminant Source and Land Use

The well rated in the high category for volatile and synthetic chemical classes due to the presence of the underground petroleum storage tank, low for inorganic and microbial chemical classes. Land use is predominantly irrigated agriculture. County level nitrogen use based on chemical sales is moderate while the county level herbicide use is rated high. Herbicides are predominantly in the synthetic organic chemical class. Underground storage tanks storing fuels contribute to the synthetic and volatile organic chemical classes. The area is also in a priority area of inorganic chemical compounds, namely fluoride, which is naturally occurring.

Table 2. Selected Construction Characteristics of Rimrock Jr. Sr. High School Wells.

Well #	Total Depth (ft.)	Screened Interval (ft. below ground surface)	Screen Below Blue Clay?	Gravel Pack Interval (ft.)
1	380	245-265; 299-302; 309-319	Yes	180-380

Final Susceptibility Ranking

In terms of the total susceptibility score, it can be seen from Table 3 that the well is rated in the high category for volatile and synthetic organic chemical contamination due to the presence of an underground petroleum storage tank near the well. There have been no detections of either contaminant in the well. Inorganic compound detections were below the maximum contaminant levels, the system ranks low for the category. The well is completed in the lower confined aquifer, offering protection from downward migration of contaminants generated from surface activities.

Table 3. Summary of Rimrock Jr. Sr. High School Susceptibility Evaluation

Well #	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
1	L	M	L	M	L	L	L	H	H	L

[1]H = High Susceptibility, M = Moderate Susceptibility, Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

The Rimrock Jr. Sr. High School drinking water system is currently threatened by volatile and synthetic organic compounds, related to potential contaminant sources and land use. The area is within a high herbicide usage rate. Inorganic compounds detected in the system are probably naturally occuring and should be monitored closely. Currently the inorganic compound detections are below maximum contaminant levels and there have been no detections of synthetic or votalite organic chemical compound in the well. The well is completed within a deeper confined aquifer that offers some protection from surficial contaminants

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully-developed source water protection program will incorporate many strategies. For Rimrock Jr. Sr. High School, source water protection activities should focus on environmental education with the recreational users, residents and with parties engaged in activities that may affect water quality within the vicinity. Even though the well is completed in the lower aquifer, protection within the vicinity will be of benefit to all users in the area. Most of the delineated areas are outside the direct jurisdiction of the Rimrock Jr. Sr. High School. Partnerships with state and local agricultural agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities can be coordinated with the Idaho State Department of Agriculture, the Idaho Department of Fish and Game, the U.S. Bureau of Land Management, the community of Grand View and other federal, state and local agencies.

Assistance

Public water supplies and others may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Boise Regional IDEQ Office (208) 373-0550

State IDEQ Office (208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. *"Recommended Standards for Water Works."*

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Idaho Division of Environmental Quality, 1997. *Idaho Wellhead Protection Plan*.

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Idaho Department of Environmental Quality, 1997. *Design Standards for Public Drinking Water Systems.* IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. *Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules.* IDAPA 37.03.09.

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Ralston, D.R. and Chapman, S.L., 1969, *Ground Water Resource of Northern Owyhee County, Idaho*. Water Information Bulletin No. 14, Idaho Dept. of Reclamation.

U.S. Department of Agriculture (USDA) Soil Conservation Service, 1991. *Soil Survey of Elmore County Area, Parts of Elmore, Owyhee and Ada Counties*

Attachment A
Rimrock Jr. Sr. High School
Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

> 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : RIMROCK JR SR HIGH SCHOOL Well# : WELL 1

Public Water System Number 3370018 3/2/01 9:16:38 AM

1. System Construction		SCORE				
Drill Date	6/14/75					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1994				
Well meets IDWR construction standards	YES	0				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	YES	0				
Highest production 100 feet below static water level	YES	0				
Well located outside the 100 year flood plain	YES	0				
Total System Construction Score		0				

2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	YES	0				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	YES	0				
Total Hydrologic Score		2				

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	YES	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		4	2	2	2
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Greater Than 50% Non-Irrigated Agricultural	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		1	1	1	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		1	1	1	0

Cumulative Potential Contaminant / Land Use Score	8	6	8	4
4. Final Susceptibility Source Score	4	3	4	4
5. Final Well Ranking	Low	High	High	Low

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.
Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water